LAWRENCE LIVERMORE REPORT

A weekly collection of scientific and technological achievements from Lawrence Livermore National Laboratory: Nov. 3 - Nov. 10, 2008.

LLNL's hydrogen car featured on Supreme Master TV

The Laboratory's hydrogen-powered car was recently featured on Supreme Master TV, a free-to-air satellite channel broadcasting 24 hours a day, seven days a week, with a variety of programs in English with subtitles in 60 languages.

Programs on the channel are broadcasted on more than 14 satellite platforms worldwide.

To see the program, go to: https://publicaffairs.llnl.gov/news/llnl_reports/noteworthy_hydrogen_31oct2008.mov

German magazine looks into Lab water filtration system

Das Haus, a German home improvement magazine, reported on the Lab's research into carbon nanotubes in the November issue.

Researchers at the Lab have created a membrane, made of carbon nanotubes, on a silicon chip the size of a quarter that may offer a cheaper way to remove salt from water.

The nanotubes, special molecules made of carbon atoms in a unique arrangement, are hollow and more than 50,000 times thinner than a human hair. Billions of these tubes act as the pores in the membrane. The super smooth interior of the nanotubes allow liquids and gases to rapidly flow through, while the tiny pore size can block larger molecules.

To read more, go to http://www.haus.de/PH2D/ph2d.htm?snr=4533 (The magazine is in German).

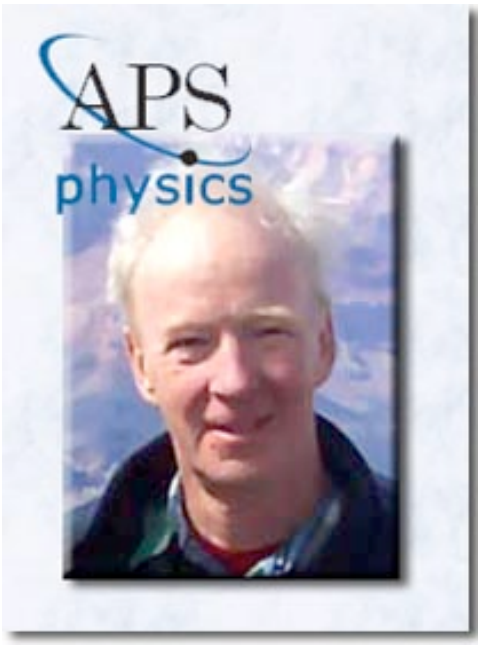
New drugs for personalized medicine in *S&TR*

Livermore researchers are using a device originally designed to determine the effects of radiation on the environment to develop new techniques for precisely measuring how drugs affect people.

At the Lab's Center for Accelerator Mass Spectrometry, researchers are conducting experiments that trace drugs through the human body to find out how to better treat patients exposed to a biothreat agent or an emerging disease.

To read more, see the September/October 2008 edition of *the Lab's Science and Technology Review (S&TR)* at https://www.llnl.gov/str/SepOct08/turteltaub.html.

Lab retiree earns 2008 Will Allis Prize



Kenneth Kulander

Livermore retiree Kenneth Kulander has won the 2008 Will Allis Prize for his work in the study of ionized gases.

Kulander was cited "For the development of time-dependent methods and models that have advanced our understanding of strong field ionization processes in rapidly ionizing gases." His research has focused on developing and exploiting methods to study the time-dependent quantum dynamics of atoms and molecules either during collision processes or when subjected to ultra-short, intense laser pulses.

Kulander received his bachelor's degree in mathematics from Cornell College in 1965 and his Ph.D. in physical chemistry from the University of Minnesota in 1972. After a postdoctoral position at Minnesota from 1972-1975, he was appointed as a senior research associate in the theoretical physics group at the Daresbury Laboratory in England from 1975-1978. In 1978, Kulander moved to the Lawrence Livermore National Laboratory, joining the Theoretical Atomic and Molecular Group. He became the leader of that group, a position he held until retirement in 2001.

To read more about Kulander, go to http://www.aps.org/programs/honors/prizes/prizerecipient.cfm?name=Kenneth%20Kulander&year=2008&renderforprint=1

Latest editon of weekly *Newsline* available

Newsline provides the latest Lab research and operations news.
See the latest issue at https://newsline.llnl.gov/_rev02/index.php

Photo of the week

Right on target -- A ladybug is placed next to a fusion fuel capsule target to be used in the National Ignition Facility (NIF). NIF will focus the intense energy of 192 giant laser beams onto a BB-sized target filled with hydrogen fuel -- fusing, or igniting, the hydrogen atoms' nuclei. This is the same fusion energy process that makes the stars shine and provides the life-giving energy of the sun.

LLNL is managed by Lawrence Livermore National Security, LLC, for the U.S. Department of Energy's National Nuclear Security Administration.

LLNL applies and advances science and technology to help ensure national security and global stability. Through multi-disciplinary research and development, with particular expertise in high-energy-density physics, laser science, high-performance computing and science/engineering at the nanometer/subpicosecond scale, LLNL innovations improve security, meet energy and environmental needs and strengthen U.S. economic competitiveness. The Laboratory also partners with other research institutions, universities and industry to bring the full weight of the nation's science and technology community to bear on solving problems of national importance.

To send input to the Livermore Lab Report, send e-mail mailto:labreport@llnl.gov.

The Livermore Lab Report archive is available at: https://publicaffairs.llnl.gov/news/lab_report/2008index.html